CLAIMS

1. A method for matching a plurality of data sets from boreholes or core sections, the data sets being obtained from sensors are two-dimensional data sets and are indicative of earth formation, boundary, or interface of earth formations and of dip in the vicinity of the borehole, the method for depth matching being characterized in that:

(a) the two-dimensional data sets are transformed into three-dimensional images using the Hough transform;

(b) two dimensional curves are derived from the three-dimensional images by the application of the Hough transform to depth derivatives of sensor signals, generated by sensors; and

(c) an offset is derived from the two-dimensional curves for applying to the two dimensional data sets to depth match them to each other.

2. The method in accordance with claim 1 wherein the method is further characterized in that the two dimensional curves have peaks indicating dip events in the vicinity of the borehole.

3. The method in accordance with claim 1 wherein the method is further characterized in that the two-dimensional data sets have gaps in the data and the three-dimensional images created using the-Hough transform are immune from the gaps.

4. The method in accordance with claim 1 wherein the method is further characterized in that two-dimensional curves for data sets from sensors that are vertically spaced from each other longitudinally along the borehole are processed to determine an offset that will match the two-dimensional curves.

5. The method in accordance with claim 4 wherein the method is further characterized in that the determined offset is applied to the data sets from the vertically spaced sensors to depth match the data sets to each other.

6. A method for matching a plurality of data sets from boreholes or core sections, the data sets being obtained from sensors are two-dimensional data sets and are indicative of a boundary, or interface of earth formations and of dip in the vicinity of the borehole, the method for depth matching being characterized in that:

for each two-dimensional data set of the plurality of data sets, individual signals making up the respective two-dimensional data set are combined to create an averaged signal;

averaged signals, each corresponding to one two-dimensional data set, are processed to calculate an offset that correlates the averaged signals; and

the calculated offset is applied to the two-dimensional data sets to depth match them to each other.

7. The method of claim 6 wherein said averaged signal are obtained by determining an average of the sensor signals along the bedding dip for a given depth in the borehole.

8. The method of claim 7 wherein said computation of bedding dips for the sensor signals is performed by way of the Hough transform.

9. The method in accordance with claims 1 or 6 wherein the method is further characterized in that two-dimensional data sets to be depth matched are obtained at the same time by sensors that are vertically spaced from each other longitudinally along the borehole.

10. The method in accordance with claims 1 or 6 wherein the method is further characterized in that two-dimensional data sets to be depth matched are obtained at different times for the same borehole.

11. The method in accordance with claims 1 or 6 wherein the method is further characterized in that a two-dimensional data set to be depth matched is obtained from a core section.

12. The method of claims 1 or 6 wherein each of said sensor signals is obtained from a sensor of a plurality of sensors.

13. The method of claim 12 wherein each sensor includes a plurality of sub sensors.

14. The method of claim 13 wherein each signal includes a trace, the trace being a side-by-side combination of signals from the plurality of sub sensors.

15. The method in accordance with claims 1 or 6 wherein the method is further characterized in that it is applicable to real time depth matching of data sets from sensors that are vertically spaced from each other longitudinally along the borehole.